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NOTES AND COMMENTS

MARKET REALITIES V. INDIGENOUS EQUITIES

I. INTRODUCTION

Corporate bio-prospectors will destroy the symbiosis between indigenous communities and their environment if India fails to enact a biodiversity law to empower rural communities in their role as guardians of traditional knowledge and partners with the environment. The emergence of this growing tension is no surprise in light of India's vast natural resources and the generations of knowledge held by diverse indigenous populations.¹ For this reason, India continues to be a prime destination for corporate research and development. Indigenous knowledge, however, is extremely vulnerable to commercial exploitation by national and multinational industries because it does not fall within the protection of traditional "Western" intellectual property rights.² The recent conflicts over the

1. See P.R.J. Pradeep, *Making Science Mumbo Jumbo*, at http://www.oneworld.org/cse/html/dte/dte981115/dte_grep3.htm (last visited June 30, 2000). There are an estimated 53 million individuals belonging to 550 tribal communities throughout India. Dr. P. Pushpangadan, IPR and Benefit Sharing in Drug and Gene Prospecting - An Indian Experiment, at 8 (Oct. 1, 1999) (unpublished report, on file with author) [hereinafter Pushpangadan].

2. The term, "Western," refers to industrialized countries as opposed to indigenous communities. Conventional Western science frequently does not recognize "the value of indigenous and subsistence farmers' informal systems of knowledge-transmission and innovation . . . the products of indigenous and local communities' knowledge have been detached from their sociological and sociocultural base . . . Western science and industry treat the living knowledge of existing indigenous knowledge and local communities as 'quaint'" Naomi Roht-Arriaza, *Of Seeds and Shamans: The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities*, 17 MICH. J. INT'L L. 919, 929 [hereinafter Roht-Arriaza]. The North-South distinction refers to the West-East or First World-Third World. See *id.* See generally Lakshmi Sarma, Comment, *Bio-Piracy: Twentieth Century Imperialism in the Form of International Agreements*, 13 TEMP. INT'L & COMP. L.J. 107 (1999) [hereinafter Sarma]. In a paper presented at a recent Commonwealth countries' meeting where benefit sharing and intellectual property issues were discussed, former director and chief coordinator of the benefit sharing project with the Kanis of Kerala, Dr. P. Pushpangadan, discussed the concept of

'American' Basmati rice patent,³ derivatives of the neem tree,⁴ and medicines containing the antiseptic properties of turmeric,⁵ illustrate the nature of India's battle to protect the intel-

Traditional Knowledge Systems (TKS). He described TKS as "local community based system[s] of knowledge which are unique to a given culture of society and have developed as that culture has evolved over many generations of inhabiting in a particular ecosystem. TKS is a general term which refers broadly to the collective knowledge of indigenous/local people about the relationship between people, habitat and the ambient resources." Pushpangadan, *supra* note 1, at 1.

3. An American company, RiceTec, successfully patented a new variety of rice derived from a strain of "Basmati," an aromatic variety of rice indigenous to India and Pakistan. Although the patent clearly acknowledged the distinction between RiceTec's novel strain and that of Basmati, the Rice Growers Association of India and Pakistan was outraged, and accused the Indian Government of surrendering intellectual property rights for a product indigenous to South Asia. Much of the hysteria surrounding the rice patent has faded, but a feeling of national tragedy persists over RiceTec's use of the name 'Basmati.' South Asian Basmati rice manufacturers may have a strong case against RiceTec for protecting Basmati as a geographic indication that is to be used solely for rice products from the Punjab region of India and Pakistan. India is currently strengthening its laws on geographic indications in order to protect appellations of origin, like Basmati, against unprotected use as a generic term for rice. Pravin Anand, *In India, IP Falls On Hard Times*, at http://www.wljx.com/practice/intellectualproperty/0506_india.html (last visited June 30, 2000); Chidanand Rajghatta, *Rice and Shine: Fragrant Basmati Now Goes Phoren*, THE INDIAN EXPRESS, Feb. 13, 1998, at 7.

4. The neem tree, commonly found in India and other parts of South and Southeast Asia, has been used for generations by Indian farmers as a pesticide. The seeds from the tree are crushed and soaked in water to form a pesticide spray for plants and food crops. Neem is also used by local populations to prevent certain skin disorders, malaria, meningitis, common colds, and influenza. In 1992, the American company W.R. Grace & Co. procured two patents for the neem extraction processes. The corporation's vice president stated that indigenous knowledge of the neem plant was merely "folk medicine" and the corporation had no intention of compensating holders and developers of the neem plant's properties in India. Although the Indian Government filed a complaint with the U.S. Patent and Trademark Office, claiming the patent was an example of "biopiracy," the government withdrew its complaint after acknowledging that the extraction processes developed by W.R. Grace & Co. were in fact novel. See John F. Burns, *Tradition in India vs. a Patent in the U.S.*, N.Y. TIMES, Sept. 15, 1995, at D4; Roht-Arriaza, *supra* note 2, at 921-922; *Trade and Development Case Studies*, at <http://www.itd.org/issues/india0.htm> (last visited June 16, 2000) [hereinafter *Trade and Development*].

5. Turmeric contains unique properties which have traditionally been used in India for cooking and healing wounds. When two scientists patented turmeric for the purpose of healing wounds, the Indian Council for Scientific and Industrial Research (CSIR) successfully challenged the validity of the patent with the U.S. Patent and Trademark Office. CSIR argued that the patented properties of turmeric were already known to the public and had been practiced for generations in India. Since such traditional practices are generally undocumented, the turmeric case caused historians to search far back into ancient Indian texts and to a paper published in the Journal of the Indian Medical Association to prove that turmeric

lectual property rights (IPRs) of its natural resources, indigenous knowledge,⁶ and derivative products.⁷ Without laws to compel more equitable conduct, corporations 'steal' traditional knowledge, deny local communities benefits and recognition, and deplete natural resources. India must create biodiversity legislation that is both a "sword and a shield"⁸ in order to balance the lucrative commercial opportunities for developing indigenous knowledge with the preservation of traditional lifestyles.⁹

The United Nations Convention on Biological Diversity (CBD)¹⁰ is the first international agreement to address the endangered partnership between indigenous communities with special knowledge of their environment, and conservation of the natural resources which these populations rely on to maintain their traditional lifestyles.¹¹ Article 8(j) of the Convention articulates this goal by focusing on member states' obligations to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying tradi-

was in fact used for centuries by Indians for various purposes. THE HINDU (BUSINESS LINE) Nov. 26, 1998, at 6; *Trade and Development*, *supra* note 4.

6. Indigenous knowledge encompasses "[k]nowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity" United Nations Conference on Environment and Development: Convention on Biological Diversity, June 5, 1992, 31 I.L.M. 818, 837 (1992) [hereinafter CBD]. See also *An Explanatory Leaflet About the Convention on Biological Diversity*, at <http://www.unep.ch/bio/bio-leaf.html> (last visited June 16, 2000). This Note uses the terms "traditional," "community," "rural," and "indigenous" knowledge interchangeably.

7. See G. Utkarsh, *Fighting Patent Wars*, at <http://www.ecopune.com/patent.htm> (last visited June 16, 2000) [hereinafter Utkarsh].

8. Doris Estelle Long, *The Impact of Foreign Investment on Indigenous Culture: An Intellectual Property Perspective*, 23 N.C. J. INT'L. LAW & COM. REG. 229, 240 (1998) [hereinafter Long].

9. Long, *supra* note 8, at 240.

10. The CBD came into force on December 29, 1993, and India became a party in 1994. See generally Sarma, *supra* note 2; Pushpangadan, *supra* note 1, at 8.

11. The CBD promotes: (1) the conservation of biological diversity; (2) the sustainable use of biological resources; and (3) the fair and equitable sharing of resulting benefits. CBD, *supra* note 6. "It was the Convention on Biodiversity negotiated at the Earth Summit at Rio de Janeiro in the face of hostility from the United States and other developed countries that recognized for the first time the right of communities to get a share in the benefits accruing from patents derived from natural resources and genetic material which they have helped to conserve over centuries." *Patent System to Protect Traditional Knowledge*, at <http://www.web-page.com/hindu/960831/05/2915c.html> (last visited June 30, 2000).

tional lifestyles relevant for the conservation and sustainable use of biological diversity . . . " through the implementation of national biodiversity legislation.¹²

This Note proposes a legislative framework that would fulfill India's commitment to protect its indigenous intellectual property pursuant to the CBD's Article 8(j).¹³ A legislative framework preserving open contractual negotiations between local communities and industries, coupled with implied non-waivable contract terms, would promote benefit sharing, informed community empowerment, and fulfillment of the CBD's goals.¹⁴ The proposed legislation mandates the inclusion of three implied procedural terms in each contract negotiated between a corporation and an indigenous community. These procedures include: (1) mandatory prior informed consent (PIC) from indigenous communities; (2) mandatory benefit sharing designed to suit the particular needs of each community; and, (3) mandatory government appointed legal counsel to act on behalf of the indigenous communities. This framework balances what are often regarded as competing interests; the natural growth of business and commercialization of indigenous knowledge, versus the protection and conservation of local communities and natural resources.¹⁵

Part II of this Note introduces a unique benefit sharing model,¹⁶ initiated in Southwest India, between the Kani tribe¹⁷ and the Tropical Botanical Garden and Research Insti-

12. Article 8, entitled *In Situ Conservation*, states that:

Each Contracting Party shall, as far as possible and as appropriate: (j) Subject to [CBD member states'] national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holder of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practice

CBD, *supra* note 6.

13. See CBD, *supra* note 6.

14. *Id.*

15. See generally Sonia Baldia, *Intellectual Property and Biodiversity: Conflicts Over North-South Equity* 216 (1999) (J.D. Thesis, George Washington University Law School) (on file with the George Washington University Law School Law Library) [hereinafter Baldia].

16. See generally Pushpangadan, *supra* note 1.

17. Kani refers to a rural community settled in the state of Kerala located in the Southwestern part of India. See generally Pushpangadan, *supra* note 1.

tute (TBGRI)¹⁸ to illustrate the need for greater community empowerment and contractual safeguards for local populations faced with bio-prospecting agreements. Part III examines the proposal for an effective legislative framework, in light of the CBD's goal to promote wider protection of indigenous knowledge and benefit sharing with local communities. Part IV concludes that until a *sui generis* system, recognizing the distinct qualities of indigenous intellectual property is developed on a national or international level, contract law is the most effective way to protect and enforce benefit sharing and equitable use of indigenous knowledge and natural resources in developing countries such as India.

II. A CASE STUDY IN BENEFIT SHARING: THE KANI TRIBE

The benefit sharing model initiated by the TBGRI with the Kani tribe illustrates the need for procedural safeguards to secure fair and equitable terms for indigenous communities transferring knowledge and resources to corporate bio-prospectors.¹⁹ At first blush, the TBGRI's benefit sharing scheme appears to achieve an ideal balance: sincere concern for overall tribal welfare coupled with facilitation of the productive use of tribal knowledge. The TBGRI, as a local Indian governmental research institute, is well versed in the Kani tribe's language, customs, and traditional lifestyle. It is primarily concerned with research and development rather than purely profit seeking motives. Even in this optimal climate, however, the TBGRI-Kani framework is prone to several weaknesses, and this reveals the futility of replicating such a model for bioprospecting agreements involving large multinationals. In the absence of Indian biodiversity legislation, and the undeniable incentive for corporations to disregard indigenous people

18. The TBGRI is located in Kerala's Thiruvananthapuram district. This autonomous organ of the state government was created in 1955 for the purpose of studying and formulating practices to sustain and conserve natural resources in the region, and to carry out chemical and pharmacological research on plants for medicinal drugs. The TBGRI currently assumes control over the Kani project. See Tony Reichhardt, 'Indian Ginseng' Brings Royalties for Tribe, *NATURE*, May 16, 1999, at 182 [hereinafter *NATURE*]. See generally Pushpangadan, *supra* note 1.

19. This rudimentary benefit sharing proposal was voluntarily assumed by the TBGRI, as there was, and remains, no legal requirement to return benefits to the local communities responsible for sustaining and providing indigenous knowledge and resources to transnational corporations. See Pushpangadan, *supra* note 1.

as equal bargaining partners, relationships based solely on trust and mutual respect, such as the TBGRI-Kani experience, are unreliable as models for future contractual negotiations over indigenous intellectual property.

A. The Discovery of Arogyapacha and the Initiation of a Benefit Sharing Model

Once a nomadic community, the Kani tribes people are presently settled in the Agasthiya Hills of the Western Ghat mountain range in Southwest India.²⁰ In 1998, the population of the Kani tribe was approximately 16,000, or an estimated 2,500 families.²¹ Like many rural communities in India, the tribe is poor and maintains its traditional lifestyle amidst the rapid modernization and proliferation of surrounding Indian cities.²² The tribals earn their income through the handicraft trade²³ and through the cultivation of minor plants and cash crops.²⁴

The Kanis are particularly well renowned for their "sure-fire antidotes"²⁵ and knowledge of the dense forest which they populate.²⁶ The region is richly inhabited by a myriad of plants potentially holding countless medicinal remedies²⁷ known and cultivated for generations by the Kani tribals.²⁸ In 1987, two local Indian researchers²⁹ explored the lush

20. *Benefit Sharing Model Experimented by Tropical Botanic Garden and Research Institute (TBGRI), A National Center of Excellence on Tropical Plant Diversity, Ministry of Environment & Forests, Government of India*, at http://www.biodiv.org/chm/techno/Casestudies_pdf/India.PDF (last visited June 30, 2000) [hereinafter *Government of India*]; NATURE, *supra* note 18, at 182.

21. *Id.* See also *Down to Earth, How to Sell a Wonder Herb*, at http://www.oneworld.org/cse/html/dte/dte981115/dte_cover.htm (last visited June 16, 2000) [hereinafter *Wonder Herb*].

22. See Pushpangadan, *supra* note 1, at 8.

23. *Id.*

24. See R.V. Anuradha, *Sharing with the Kanis: A Case Study from Kerala, India*, at http://www.biodiv.org/chm/techno/casestudies_pdf/Kanis.pdf (last visited June 30, 2000) [hereinafter *Anuradha*].

25. See *Wonder Herb*, *supra* note 21.

26. See *Wonder Herb*, *supra* note 21; Pushpangadan, *supra* note 1, at 8-9.

27. See Pushpangadan, *supra* note 1, at 8-9.

28. See *id.*

29. Dr. P. Pushpangadan (former director of the TBGRI and currently at the National Botanical Research Institute) and S. Rajasekharan (currently an ethnobotanist at the TBGRI) were the first to be introduced by the Kanis to *Tricopus zeylanicus*. Note that the researchers were not affiliated with the TBGRI at the time of discovery, but the research and development was transferred to the

Agasthiya Hills³⁰ under the auspices of a government sponsored initiative called the All India Coordinated Research Project on Ethnobotany (AICRPE).³¹ Guided through the forest by two Kani tribe members,³² the researchers observed their native guides chewing the seeds of a mysterious plant. Immediately after ingesting the plant, the tribals gained a visible burst of energy.³³ The scientists, curious about the startling effect of the plant, inquired about its identity, and the Kanis' knowledge of it. The researchers made oral guarantees to the Kani guides that if some useful scientific and medicinal properties could be isolated and further developed into a marketable drug, half of the proceeds would be shared with the Kanis.³⁴

Through the local Kani guides,³⁵ the researchers were introduced to the benefits of *Tricopus zeylanicus* (subspecies: *travancoricus*).³⁶ "[T]he world did not know about this unique plant until the Kani people led us to it," commented one of the original AICRPE researchers.³⁷ *Tricopus zeylanicus*, also referred to as "Arogyapacha,"³⁸ is indigenous to parts of Kerala, the neighboring state of Tamil Nadu, as well as Sri Lanka and Malaysia.³⁹ However, subspecies *travancoricus*, the particular variety known to the Kanis, is solely indigenous to India.⁴⁰

After experimentation with *Tricopus zeylanicus*, a research

TBGRI once Dr. P. Pushpangadan was appointed Director. *Id.*

30. The Agasthiya Hills are located in the Western Ghat mountain range of Kerala, India.

31. AICRPE was initiated by the Man and Biosphere Programme of the United Nations Economic, Scientific, and Cultural Organisation (UNESCO) in 1982. Note that at this time the TBGRI had not been in control of the project; however, they eventually assumed such control. See *Wonder Herb*, *supra* note 21. "AICRPE was essentially a multidisciplinary, multiinstitutional and action-oriented research programme. It aimed at generating and documenting the multidimensional perspectives of the tribal life culture, traditions and knowledge systems associated with the utilization of the local biological and other natural resources." *Government of India*, *supra* note 20; Pushpangadan, *supra* note 1, at 8.

32. See *Wonder Herb*, *supra* note 21.

33. See *NATURE*, *supra* note 18, at 182.

34. See *Government of India*, *supra* note 20.

35. See *Government of India*, *supra* note 20.

36. See Pushpangadan, *supra* note 1, at 10.

37. See *NATURE*, *supra* note 18, at 182.

38. Arogyapacha literally means "green health" in Malayalam, the language spoken in Kerala. See *Wonder Herb*, *supra* note 21.

39. See *Government of India*, *supra* note 20.

40. Anuradha, *supra* note 24, at 4; Pushpangadan, *supra* note 1, at 10.

team isolated an active ingredient and reported that it possibly contained "immune enhancing properties and liver protecting qualities."⁴¹ The TBGRI⁴² proceeded to develop a herbal formulation derived from 15% of the plant's active ingredient⁴³ and called it Jeevani.⁴⁴ In November 1995, after negotiating with several drug companies, the TBGRI sold the licensing rights and manufacturing technology for Jeevani⁴⁵ to the Arya Vaidya Pharmacy of Coimbatore (AVP) for ten lakhs,⁴⁶ approximately 22,000 U.S. dollars,⁴⁷ for a period of seven years.⁴⁸ The TBGRI also obtained a patent for the unique formulation, which is currently held by the Institute.⁴⁹

Pursuant to the terms of the initial knowledge transfer, the TBGRI reiterated the promise of the AICRPE researchers to share 50% of the licensing fee paid by the AVP for the technology transfer of Jeevani, as well as one-half of the 2% royal-

41. Pushpangadan, *supra* note 1, at 10.

42. Although the TBGRI reported that the Arogyapacha plant has special immune enhancing properties, it added that the plant extraction was one of several active ingredients developed by TBGRI researchers to create a unique herbal formulation. *Id.* at 11.

43. *See Wonder Herb, supra* note 21.

44. Jeevani was ready for commercial sale in 1990. There is no dispute that the patent right to Jeevani, held by the TBGRI, is valid. Nor does this Note imply that there is any obligation under current Indian law to implement benefit sharing models or protective measures for indigenous intellectual property. At the inception of this project, the TBGRI was under no obligation to give anything back to the Kani community. However, the researchers created an obligation when they made oral promises to share half of any benefits arising from the development of Arogyapacha with the Kanis. *See* Pushpangadan, *supra* note 1, at 9. Jeevani means "life-giver." Neelesh Misra, *Indian Tribesman Look to Profit from Energy*, at <http://www.stardem.com/ap/world/0402tribal.html> (last visited Aug. 23, 1999) [hereinafter Misra].

45. *See* Misra, *supra* note 44.

46. Arya Vaidya Pharmacy (Coimbatore) Ltd. is a leading private manufacturer of Ayurvedic drugs. *Wonder Herb, supra* note 21; *Arya Vaidya Pharmacy*, at <http://www.avpayurveda.org/products.htm> (last visited June 16, 2000).

47. The currency of India is the rupee. As of November 5, 2000, the exchange rate is 45.60 rupees = 1 U.S. dollar. One Lakh = 100,000 rupees. Bamex Currency Exchange, at <http://www.bamex.com/currencyexchangerates.html> (last visited November 5, 2000). Note that the TBGRI tried to get Jeevani patented in the name of the tribe, according to Dr. P. Pushpangadan, but Indian patent law would not permit it. *See* Letter from P. Pushpangadan to Author, National Botanical Research Institute (Oct. 1, 1999) (unpublished letter, on file with author); *Wonder Herb, supra* note 21.

48. *See Wonder Herb, supra* note 21.

49. *See* Pushpangadan, *supra* note 1, at 8.

ty that the TBGRI would receive from the AVP.⁵⁰ In exchange, Kani tribe members were enlisted by the AVP and the TBGRI to cultivate and collect Arogyapacha plants.⁵¹ Once the agreement was finalized between the AVP and TBGRI, the Kerala state government's Integrated Tribal Development Project collaborated with the TBGRI to develop settlements for the Kanis to begin large scale cultivation of plants.⁵² Fifty families were selected by the TBGRI to cultivate Arogyapacha over 20.25 hectares of land.⁵³ Each family reportedly received Rs.1,000 at the inception of the project and the TBGRI subsequently purchased Rs.30 per kilogram of Arogyapacha.⁵⁴ The AVP independently offered the tribals Rs.100⁵⁵ per kilogram of raw plant material.⁵⁶

After one and a half years of the Kanis' successful collection and cultivation of plants, the state government of Kerala halted the export of Arogyapacha from the Agasthiya forest. Kerala's Chief Conservator of Forests⁵⁷ declared that under state law, Arogyapacha is a strictly protected forest product that people are prohibited from removing.⁵⁸ Due to the bulk of tropical forest reserves in the Agasthiya region, all plants extracted from the forest are vigilantly protected by the state government under the Indian Forest Act of 1927,⁵⁹ and access is highly restricted by the State Forest Department.⁶⁰ Thus, the Kanis were forbidden by state law to continue their cultivation and removal of Arogyapacha.⁶¹ State officials explained

50. See Anuradha, *supra* note 24.

51. See *Wonder Herb*, *supra* note 21.

52. *Id.*

53. *Id.*

54. *Id.*

55. *Id.*

56. *Id.*

57. See Anuradha, *supra* note 24.

58. See Pushpangadan, *supra* note 1, at 12. A vigilance officer of the Chief Conservator of Forests commented that "Arogyapacha is a 'rare plant' and is contraband in the free market." The Central Wild Life Act and Kerala Forest Act prohibit anyone from collecting or transferring plants outside of the forest unless it is included in the small list of products that may be removed in small quantities from the protected forests. Vinu Abraham, *Nipped in the Bud*, at <http://www.theweek.com/97nov09/events4.htm> (last visited Aug. 23, 1999) [hereinafter *Nipped in the Bud*].

59. See *Government of India*, *supra* note 20.

60. See *Government of India*, *supra* note 20.

61. See *Nipped in the Bud*, *supra* note 58.

that the small amount which the Kanis traditionally procured for personal use was acceptable, but the large quantities smuggled from the forest for the production of Jeevani was illegal.⁶² The state's primary concern was that large scale demand of Arogyapacha would lead the Kanis to "remove the plants from the natural population of this species [of Arogyapacha] in the forest and thereby make it endangered."⁶³

The ban on Arogyapacha drove many Kani tribes people to turn to the illegal collection of plant material because private nurseries continued to offer them compensation.⁶⁴ Eventually, due to the drought in supply, the AVP's requirements for Arogyapacha far exceeded the supply, and the production of Jeevani was halted by the pharmacy for an entire year.⁶⁵ The AVP desperately proposed a plan to assure controlled cultivation and collection of Arogyapacha and to alleviate the Forest Department's concerns that Jeevani production would hinder sustainable use of Arogyapacha.⁶⁶ The AVP's plan involved an offer to supply the Kanis with money to buy seeds and independently initiate the large scale cultivation of Arogyapacha. Therefore, larger numbers of Kanis could be employed and the pharmacy would buy back the leaves at a rate of five tons per month.⁶⁷ The Forest Department, however, refused the proposal. The AVP pointed to the "irony of the situation" because the "TBGRI as part of the State Government had licensed [the] AVP to manufacture the drug; whereas the Forest Department which is also part of the State Government is not facilitating the manufacturing process."⁶⁸ Although the reasons are un-

62. "The scientists from TBGRI themselves admit that this may endanger Arogyapacha plants and so we cannot allow the transfer of the plants from the reserve forests," stated the Chief Conservator of Forests, T.M. Manoharan. *Nipped in the Bud*, *supra* note 58.

63. Pushpangadan, *supra* note 1, at 12. "Being a perennial plant once planted, it will remain there about 25-30 years after which replantation may be required." *Id.*

64. "The Scientists at TBGRI believe that the medicinal properties of the leaves of the plant are most pronounced in plants occurring in the wild, or which are cultivated in the [Agasthiya] forest area." Anuradha, *supra* note 24. Therefore, the possibility of collecting the Arogyapacha plant from other regions where collection of the plant is legal, or breeding the plant in a botanical garden do not appear to be viable options. *Wonder Herb*, *supra* note 21.

65. See *Wonder Herb*, *supra* note 21.

66. See Anuradha, *supra* note 24.

67. *Id.*

68. Anuradha described the conflicting government policies as "illustrative of

clear, the former director of the TBGRI stated in a published report that the Forest Department eventually lifted its ban to include *Tricopus zeylanicus* in its list of forest products which the Kanis could legally export from the state protected forests.⁶⁹

In November 1997, the TBGRI and a few Kanis organized the Kerala Kani Samudaya Kshema Trust (Trust)⁷⁰ in order to facilitate the transfer of licensing proceeds and royalties from the sale of Jeevani.⁷¹ According to R.V. Anuradha, the decision to organize the Trust was made at a local meeting consisting of forty tribal members.⁷² The objective of the Trust deed is the promotion of "welfare and development activities for Kanis in Kerala, preparation of a biodiversity register to document the knowledge base of the Kanis, and evolving and supporting methods to promote sustainable use and conservation of biological resources."⁷³ The Trust was structured so that Kani families involved with the TBGRI's project could enlist themselves as members of the Trust.⁷⁴

Today, the TBGRI reports that approximately sixty-percent of the Kani families in Kerala are members of the Trust.⁷⁵ The Trust is owned and managed by the Kanis themselves⁷⁶ and the positions of President and Vice-President are filled by the two original Kani guides who disclosed the tribe's knowledge to researchers in 1987.⁷⁷ Despite the organization

how the confusion exists because the different actors are not very sure of how to react [or] what their role should be." He added that "[t]he irony of the situation is that TBGRI, the Forest Department and KIRTADS are all part of the same State government, among whom there seems to be no co-ordination or even a mechanism for dialogue." Anuradha, *supra* note 24.

69. See P.K. Surendran, *Tribals Get Intellectual, Commercial Rights over Herbal Drug*, TIMES OF INDIA, Mar. 24, 1999, at <http://www.timesofindia.com/today/24indi24.htm> (last visited June 30, 2000) [hereinafter Surendran]; Pushpangadan, *supra* note 1, at 12.

70. The Kerala Kani Samudaya Kshema Trust was registered in 1998 with nine members of the Kani tribe. "Samudaya" means community, and "Kshema" means welfare in Malayalam, the language spoken in Kerala. Pushpangadan, *supra* note 1, at 12; Anuradha, *supra* note 24, at 10.

71. See *Wonder Herb*, *supra* note 21.

72. See Anuradha, *supra* note 24, at 10.

73. *Id.*

74. See Pushpangadan, *supra* note 1, at 8.

75. See Pushpangadan, *supra* note 1, at 11.

76. *Id.*

77. See Surendran, *supra* note 69. In addition to the TBGRI's promised percentage of the profits and licensing fee, "[t]he Trust has also resolved to give Rs.

of a Trust, the actual transfer of the funds was delayed by the State Tribal Welfare Department and the Forest Department.⁷⁸ The TBGRI, which began setting aside the Kanis' share of the licensing fees and royalties in a separate bank account since the inception of the project, failed to receive clearance from the state government to transfer the money to the Trust until February 1999.⁷⁹ The Kanis' current share of the Trust includes "the license fee and royalties received on account of the drug 'Jeevani' . . . in the form of [a] fixed asset of the Trust and only the interest accrued from this amount alone can be used for the welfare activities of the Kani tribe."⁸⁰ What that actually means for the Kanis is cryptic.

B. Weaknesses of the TBGRI-Kani Benefit Sharing Model

Although this laudable benefit sharing initiative is hailed by its architects as the first of its kind,⁸¹ indigenous communities are guaranteed to encounter unscrupulous corporations, holding far less regard for benefit sharing than the TBGRI. The TBGRI's initiative was, admittedly, the first of its kind in India to incorporate principles of equitable sharing and the preservation of indigenous knowledge, as promulgated by the CBD.⁸² Without pro-active biodiversity legislation, however, there is little incentive for corporations to adequately protect the rights of indigenous communities. With India's emergence as a friendlier marketplace for international and national corporations,⁸³ the need for indigenous intellectual property safeguards increases. The current unregulated contractual model threatens to facilitate the upheaval of indigenous communities and exploitation of the country's natural resources.⁸⁴

50,000 as a reward to three tribesman who had imparted the secrets of the plant to the TBGRI scientists." *Id.*

78. See Surendran, *supra* note 69.

79. Pushpangadan, *supra* note 1, at 11.

80. Pushpangadan, *supra* note 1, at 12.

81. Pushpangadan, *supra* note 1, at 13.

82. *Nipped in the Bud*, *supra* note 58.

83. See generally Baldia, *supra* note 15.

84. *Id.*

III. DEVELOPING A FRAMEWORK FOR INDIA'S BIODIVERSITY LEGISLATION

Although the Indian government's effort to construct biodiversity legislation began upon India's accession to the CBD, the numerous proposals and draft bills have yet to translate into a workable product.⁸⁵ The proposed legislation has failed to garner the same sense of urgency among Parliament members, as was the case with the Patents Amendment Act.⁸⁶ One explanation for the differing political reactions is that the impetus behind the Patents Amendment Act was primarily international, and the required changes in India's patent laws were clearly defined. The CBD's mandate to enact national legislation, however, is less structured and purposely left to the discretion of member states.⁸⁷ The Indian Government, alone, bears the task of creating legislation which is appropriate for both its indigenous communities and highly demanded natural resources.

85. Little is known about the draft Bill that is currently under construction. According to the expert committee in charge of the draft legislation, the Indian government's latest draft proposal includes: (1) the implementation of a National Biodiversity Board to regulate and manage resources and state and community boards to enforce at the local level; (2) local biodiversity registers to maintain local knowledge bases and access to knowledge; (3) "notification of biodiverse areas;" and, (4) benefit sharing models. *India May Control Patenting with National Biodiversity Board*, at <http://ens.lycos.com/ens/apr99/1999L-04-16-08.html> (last visited June 30, 2000). However, the draft of the legislation has remained, for the most part, confidential. The National Biodiversity Board would regulate access to India's natural resources and prevent the exploitation of indigenous community knowledge "by assessing the values and fixing base prices." *Id.* In addition, the board would have the power to oversee commercial contractual agreements and the general national situation. *Id.*

86. *Biodiversity Legislation Derailed*, at http://members.tripod.com/sdnp_ind/biodiv/news/b1-20-5-biolegis.html (last visited Aug. 31, 2000).

87. India felt tremendous pressure from WIPO, WTO, and countries such as the United States, to enact laws that would conform with the internationally agreed standards set out by TRIPs. Specifically, by adopting internationally recognized standards, foreign entities are ensured recognition and protection for their product patents within India and Indian patents are similarly recognized abroad. India, in turn, becomes an easier and more attractive place to obtain a patent and host transnational business activity. *India Agrees to Abide by Two Major Patent Treaties*, at 10/13/98 DJINS 22:55:00 [hereinafter *India Agrees*].

A. *Indigenous Knowledge and Intellectual Property*

The popular misconception that traditional knowledge is 'unscientific' contributes to its diluted protection under current intellectual property regimes.⁸⁸ This notion arises from the typical characteristics of indigenous knowledge and the dominance of Western intellectual property laws.⁸⁹ Indigenous knowledge is passed orally among individuals, generally remains undocumented, is rarely reduced to specific technological processes or chemically isolated properties, and is not tested in conventional laboratories for accuracy and consistency.⁹⁰

Patent laws grant inventors a temporary monopoly over certain subject matter which satisfy the conditions of patentability.⁹¹ In the U.S., for example, an invention only may be patented if it is novel, useful, and non-obvious.⁹² The conventional framework of patent law, regarded as "almost similar worldwide," is inapplicable to indigenous knowledge because it fails to meet well established patentability requirements; namely, the subject matter requirements.⁹³ First, traditional knowledge falls astray from the category of patentable inventions because it lacks novelty.⁹⁴ Since whole communities possess the same information, there is no opportunity to identify a "first" innovator. Second, indigenous knowledge rarely meets the requirement of non-obviousness, because there is no 'inventive step'.⁹⁵ Discoveries and observations, whether of plants,

88. The North's narrow definition of intellectual property, one that excludes indigenous knowledge, has been criticized because it facilitates the theft of traditional knowledge and creativity. See Sarma, *supra* note 2, at 107.

89. "Most intellectual property law models are based on Western, capitalist philosophy, and indeed appear to be developed with such a world view in mind. The mere fact that works of intellectual creativity and innovation, so-called "works of the mind," are granted the status of protectable individual property itself represents a Western view. It is no coincidence that intellectual property rights were first recognized in Western Europe where individual ownership of property was possible." Long, *supra* note 8, at 246; Vandana Shiva, *The Politics Of Knowledge at the CBD*, at <http://www.southside.org.sg/souths/twn/title/cbd-cn.htm> (last visited June 30, 2000) [hereinafter Shiva]; Baldia, *supra* note 15, at 206.

90. Shiva, *supra* note 89; Joel L. Swerdlow, *Nature's R*, NATIONAL GEOGRAPHIC, Apr. 2000, at 11.

91. Pushpangadan, *supra* note 1, at 3.

92. 35 U.S.C. §§ 101-103 (2000).

93. Baldia, *supra* note 15, at 206. Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127 (1948).

94. *Id.*

95. *Id.*

animals or biological processes, are excluded from patent protection because they do not promote "technical, economic and social progress."⁹⁶ Instead, indigenous knowledge is usually acquired and perceived by indigenous communities amongst a mixture of conditions which are often inseparable from the context of traditional customs, practices and the environment.⁹⁷ Third, due to the drastically increased demand for natural resources and traditional knowledge from bio-prospectors, indigenous communities only have recently recognized the need to document and protect their knowledge. Aside from ancient scriptures and texts, knowledge is still transferred by oral tradition. Fourth, as many opponents of IPRs in India suggest, the concept of attaching property rights to generations of accumulated knowledge is foreign and perplexing to indigenous populations.⁹⁸ Changes in the perception of traditional knowledge—from community property to commercial commodity—requires a drastic shift in the local populations' ideology.⁹⁹

B. Balancing the Protection and Commercialization of Indigenous Knowledge

India is currently experiencing a cultural, political and ideological shift in favor of intellectual property protection as evidenced by its willingness to be bound by international intellectual property standards. This gradual change in sentiment follows the Indian public's recent backlash against the very notion of intellectual property, spurned by international controversies over basmati rice, neem and turmeric,¹⁰⁰ and the perceived exploitation of India's natural resources and indigenous knowledge by transnational corporations. The decision to embrace international intellectual property standards has allowed India "to utilize demanded-for intellectual property rights as a

96. *Id.* at 205.

97. In order to accommodate this expansion of the notion of intellectual property, a *sui generis* system may be created. This Note does not attempt to explore the possibilities of a *sui generis* system, as it is a broad and lengthy discussion which exceeds the scope of this article.

98. See Pushpangadan, *supra* note 1, at 2. See also Usha Lee McFarling, *Nature's Vanishing Pharmacy*, THE BOSTON GLOBE, Oct. 3, 1994, at 25.

99. See generally Long, *supra* note 8.

100. Paris Convention for Protection of Industrial Property, Mar. 20, 1883, as last revised, July 14, 1967, 21 U.S.T. 1538, 828 U.N.T.S. 305 [hereinafter Paris Convention].

sword and shield against deculturizing forces of globalization and foreign investment."¹⁰¹ India's acknowledgment of the emerging international intellectual property standards established by industrialized nations began in 1994 with its accession to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS).¹⁰² Thereafter, India signed the Paris Convention for the Protection of Industrial Property (Paris Convention)¹⁰³ and the Patent Cooperation Treaty¹⁰⁴ pursuant to its obligations under the TRIPS agreement. Although American patent attorneys hailed this development as "long awaited" and "necessary for India,"¹⁰⁵ concerns continuously raised by persistent Indian opposition groups are a stern reminder that the Indian Government must remain vigilant about protecting its indigenous communities from exploitation and deculturation.

101. Long, *supra* note 8, at 240.

102. India ratified the World Trade Organization Agreement on April 15, 1994, and thus the TRIPS Agreement as well. Pursuant to this international agreement, India committed itself to reform its intellectual property laws within ten years, in order to comply with fellow members' standards. This included a revision of the Patent Act of 1970 to include the recognition of product patents in addition to process patents. Indian patent law formerly only granted process patent rights making it difficult for foreigners holding product patents to protect their rights in India. In addition the length of the term for patent protection must be extended from seven years to twenty years, and the product patents will extend to branches of technology not currently covered by India's laws. See Sudhir D. Ahuja, *IP Treaties Show Little Effect In India*, THE HINDU, Nov. 24, 1998, at 8.

103. India signed the Paris Convention in August 1998. Accession to the Paris Convention allowed India to be a part of the Patent Cooperation Treaty enabling automatic patent recognition in all member states with a simple filing in one country. Compliance with the Convention required India to amend the Designs Act 1911 and the Patents Act 1970. The Patents Act 1970 provides little patent protection for pharmaceuticals. *Patent Untruths—I The Misconceptions about Intellectual Property*, THE STATESMAN, Sept. 9, 1998, at 1998 W.L. 17360146.

104. Amy Louise Kazmin, *India Set to Sign Paris Convention*, at <http://www.ljx.com/practice/intellectualproperty/0824indiaparis.html> (last visited June 30, 2000).

105. "India has finally recognized that they have to play by the same rules as everyone else. That is to be applauded," stated a U.S. patent attorney, Gerard Norton. See *India Agrees*, *supra* note 87. It is "unfortunate that we have created an impression in the world that India does not believe in or respect IPRs, more so, when we claim that we possess the second largest reservoir of scientists, engineers and skilled technical manpower in the world. The world finds it difficult to understand the dissonance between the assertion of our brainpower strength and our aversion to the recognition of a rewarding of IPRs in the country," observed the author of the article *Patent Untruths—I The Misconceptions About Intellectual Property*. *Patent Untruths*, 1998 W.L. 17360146.

With the advent of an integrated global economy, and pressing transnational environmental concerns, the drafters of the CBD adopted a synergistic approach to the protection of biological diversity, indigenous communities, and sovereignty over natural resources by encouraging an "integrated approach to environmental protection."¹⁰⁶ The Convention was the first to advance the notion that indigenous knowledge is an expansion of intellectual property, and thus entitled to equally stringent protection. By steering international awareness toward the relationship between the world's natural resources and "humanity's economic and social development," the CBD affords India the opportunity to shape its laws in response to this changing partnership.¹⁰⁷

The Indian government, private sector, and scientific community stand to gain a significant niche in the global marketplace by capitalizing on the untapped potential flowing from the dissemination, expansion, and commercialization of indigenous knowledge.¹⁰⁸ The booming market for the conversion of raw materials to "diversified value added products"¹⁰⁹ is a powerful incentive for the government to create an optimal climate for industries seeking to commercialize and procure IPRs in India.¹¹⁰ Ultimately, success rests on the government's ability to promote sustainable use of natural resources and to protect the communities holding indigenous knowledge.¹¹¹ Safeguarding the intellectual property held by India's diverse rural communities is just as significant, if not more pressing,

106. Alexandre Kiss, *International Environmental Law*, in INTERNATIONAL ENCYCLOPEDIA OF LAWS 13 (Kluwer Law International 1998), at 48.

107. Long, *supra* note 8, at 240.

108. One of twelve 'megadiversity' regions in the world, the Indian subcontinent encompasses 8% of the entire globe's biological diversity. With 46,000 plant species and 81,000 animal species, India is regarded around the world as a rich source for agricultural, medicinal, cosmetic, and industrial products and other chemicals of commercial importance. See *125 Days of New Government New Programmes and Initiatives*, at <http://envfor.nic.in/mef/125days/125days.htm> (last visited June 16, 2000); *Government of India*, *supra* note 20.

109. *Government of India*, *supra* note 20.

110. Multinational pharmaceuticals such as "Hoechst, Sandoz, Cargill, Unilever, Ciba-Geigy and Merck" have all started pouring money into India for research and development ventures in the hopes of tapping into India's vast biogenetic resources. Baldia, *supra* note 15, at 205.

111. *Id.*

as the growth and globalization of India's commercial markets.¹¹²

C. General Framework and Goals

The conventional contract model, supplemented by implied, non-waivable statutory terms pursuant to Article 8(j), would provide the most comprehensive protection for indigenous knowledge, without extinguishing the flexibility and freedom to customize mutually attractive contract terms with bio-prospectors.¹¹³ Currently, the mode of transaction between local communities and transnational businesses takes the form of unrestricted negotiations devoid of safety mechanisms to assure fair dealings.¹¹⁴ Since these transactions are not augmented by supervisory legislation, benefit sharing and mutually agreed terms are rare commodities.¹¹⁵

Conditions which are specifically required by the CBD, and necessary to incorporate in India's biodiversity legislation, include: (1) prior informed consent (PIC) for the purpose of full disclosure and voluntary participation; (2) mandatory benefit sharing; and, (3) access to legal counsel to equalize local communities' bargaining power with businesses. Finally, evidence of the Indian government's bureaucracy and conflicting political interests suggests that governmental interference beyond the enactment and enforcement of biodiversity legislation would create confusion and decrease efficiency. The government would better serve as a regulatory body, without veto power over the substantive terms of contracts. Legislation incorporating these interests promulgates freedom of contract as well as the paternal instincts of the CBD.

1. Prior Informed Consent

PIC is one of the most important tools that indigenous communities may use to demand full disclosure, active participation, and authority to accept proposed bio-prospecting agreements.¹¹⁶ Written PIC is mandated in the text of the CBD to

112. See generally Baldia, *supra* note 15.

113. See Baldia, *supra* note 15, at 1-8.

114. Anuradha, *supra* note 24, at 2.

115. See Baldia, *supra* note 15, at 194.

116. In 1991, U.S. Pharmaceutical, Merck, and a Costa Rican non-profit govern-

reinforce indigenous communities' sovereignty over the natural resources which are so intertwined in the communities' traditional lifestyle. Corporations, in seeking new medicinal knowledge and resources for commercial use, threaten to disrupt rural communities by altering the balance of resources, creating competition within communities, and imposing accelerated modernization.

To counter such negative effects, local communities must possess the power to determine the extent and strength of proposed benefit sharing and bioprospecting terms. Truly informed consent hinges on the full disclosure of information, in conjunction with community access to legal counsel. "Such contracts are not uncommon in Peru, Philippines or Africa. To provide teeth to such contracts, it is necessary to modify the IPR legislation to enforce submission of relevant contract/transfer agreements as a proof of the prior informed consent."¹¹⁷ The Andean Pact, comprised of Bolivia, Columbia, Ecuador, Peru, and Venezuela, has developed a proposal whereby patents and other intellectual property rights would only be granted upon a presentation of an application and signed contract as proof of prior informed consent.¹¹⁸

The language of the CBD's Article 8(j), referring to the "approval and involvement of the holders of such knowledge, innovations and practices,"¹¹⁹ has been interpreted by the drafters of the Convention to require that provisions on access to genetic resources and indigenous knowledge must be based on "prior informed consent (PIC) and mutually agreed terms (MATs)."¹²⁰ In an explanatory guide to the key terms of Article 8(j), the drafters of the CBD discussed three fundamental factors to be considered in appraising the adequacy of PIC by

ment research organization, INBio, contractually agreed to transfer chemical extracts from local plants and animals in exchange for technology transfers, royalties and a front end fee. The success of the INBio-Merck Agreement was premised on the concept of mutually agreed terms. See Baldia, *supra* note 15, at 192.

117. Utkarsh, *supra* note 7.

118. See Graham Dutfield, *The Andean Pact Common System on Access to Genetic Resources: A Commentary*, at <http://www.users.ox.ac.uk/~wgtrr/andpa-comm.htm> (last visited Jan. 16, 2000).

119. CBD, *supra* note 6.

120. CBD: *Elaboration of Key Terms of Article 8(j) and Related Provisions in Articles 10(c), and 17.2 and 18.4.*, at <http://www.biodiv.org/indig/tkhd-4e.htm> (last visited June 16, 2000) [hereinafter *Key Terms*].

indigenous communities:¹²¹ "[h]olders of traditional knowledge will need to (1) feel secure in tenure arrangements regarding their traditional land, forest and marine/inland water estates; (2) feel reassured that they have been accorded equal status to the other members of the partnerships; and, (3) be convinced of a common purpose compatible with their cultural and ecological values."¹²²

In the case of the Kanis, there is no evidence that either the tribe or the two Kani guides, gave prior informed consent to the transfer of their indigenous knowledge or to the proposed use and benefit sharing arrangement, as defined in the text of the CBD. R.V. Anuradha, an attorney from New Delhi, India, who closely researched the Kani model for the Foundation for International Law and Development (FIELD),¹²³ reported that the tribals regarded their knowledge of the Arogyapacha plant as a sacred tribal secret.¹²⁴ In an abstract submitted by the TBGRI to the Executive Secretary at the third meeting of the Conference of the Parties for the Convention on Biological Diversity (TBGRI Abstract),¹²⁵ research scientists divulged that Kani guides had been extremely reluctant to disclose any information about Arogyapacha.¹²⁶ The TBGRI Abstract also acknowledged that in order to encourage the Kanis to reveal their knowledge, researchers convinced the tribals that any information they received from the Kanis would not be misused.¹²⁷

Though the TBGRI maintains that the tribe was involved and informed throughout the planning stages, these disclosures only occurred after the original scientists unilaterally initiated the project. The focus of a PIC requirement is full disclosure and documentation by both parties of future expectations and intentions. In this case, there is no indication that the two Kanis who disclosed the tribe's indigenous knowledge

121. *Id.*

122. *Id.*

123. *Government of India, supra* note 20.

124. *Id.*

125. *Id.*

126. *Id.*

127. Kuttimathan Kani, one of the two tribals who led researchers to the plant said, "[r]ight in 1987, the scientists had promised the Kani tribals due share from any profit arising from research based on the plants we showed them." *Wonder Herb, supra* note 21.

were representative of the entire tribe's interest. In addition, it is unlikely that the Kani guides were informed of the implications of bioprospecting—such as the strain on the surrounding natural resources which could drastically alter the Kanis' traditional lifestyle and environment. The team of researchers who continued the Arogyapacha project, under the auspices of the TBGRI, also failed to document their intentions and their promises to pay the Kanis half of any profit received from the development of Arogyapacha until the project was well underway. The Kanis' eventual disclosure to researchers was a product of coercion and faith that the TBGRI was not acting in a purely self interested manner.¹²⁸

2. Mandatory Benefit Sharing

In compliance with the CBD Article 8(j)'s objective to conserve biological diversity and to protect traditional knowledge, Indian biodiversity legislation must provide a legal framework mandating benefit sharing partnerships between local communities and bioprospecting companies.¹²⁹ According to the CBD's explanatory report on key terms, "[t]he practical relationship between access-control and benefit-sharing must be fleshed out on national and local levels."¹³⁰ The proposed biodiversity legislation should include this requirement for any national or transnational entity interested in using indigenous knowledge and natural resources for commercial purposes, such that the contractual model is tailored to the particular community and the nature of the transaction. The CBD's broad requirements, subject to individual customization, allow greater potential for success because the bioprospecting agreements will accurately reflect the needs of India's diverse communities and cultures, and the local and national capabilities for legislative implementation.¹³¹

Biodiversity legislation requires a form of benefit sharing between industry and local communities in which the mutually negotiated incentives are formulated to be of legitimate value to the community. The CBD's Article 8(j) states that member

128. See Anuradha, *supra* note 24.

129. *Key Terms*, *supra* note 120.

130. *Id.*

131. CBD, *supra* note 6.

states must "encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practice"¹³² The explanatory report of Article 8(j)'s key terms clarifies this clause by stating that "[a]mong the results and benefits that may be shared are payment for access to specimens, royalties, data, technology, capacity building, training, joint research, equitable sharing—refers to the benefit-sharing mutually agreed upon by the parties to the Research Agreement."¹³³ It is important to note that "[m]embers of indigenous communities may not want royalties or patent rights because such compensation may not be part of their system."¹³⁴

One of the key elements of the CBD is the sustainable, non-destructive use of biodiversity.¹³⁵ This is also a valuable incentive for businesses to embrace benefit sharing. Without the conservation of natural resources, the industrial supply of raw materials will constantly be threatened. Creating benefit sharing agreements with the holders and cultivators of knowledge and resources assures that both parties will have an investment in the long- and short-term success of the agreement. Indigenous communities have to consider the possible drastic and destructive effects of bioprospecting on their environment and lifestyle. Both indigenous communities and corporations carefully must plan long term objectives to assure future generations will be motivated by the same beneficial incentives in order to continue sustainable use and conservation of protected natural resources and indigenous knowledge. Agreements must include provisions to ensure the transfer of benefits. This may be in the form of trusts funds or some other meaningful compensatory scheme. Replication of the model for the benefit of future generations is also an important consideration. Through the enactment of biodiversity legislation, the Government, in its supervisory role, will legitimize the CBD's request for benefit sharing by enforcing the actual construction of such arrangements. The procedural requirements of written prior informed consent, and mandatory benefit sharing, provide a

132. *Id.*

133. *Key Terms*, *supra* note 120.

134. Sarma, *supra* note 2, at 123.

135. CBD, *supra* note 6.

sturdy platform for the substantive negotiation of equitable terms.

Although the TBGRI described the Kani project as one based on "mutual trust, respect, transparent and free communication with the Kani tribe . . . ,"¹³⁶ there is no evidence that the Kanis affirmatively agreed to or actively negotiated any of the fundamental terms of the TBGRI initiated project. The TBGRI unilaterally determined the allocation of monetary benefits, the mechanism for distribution, and the form and nature of the benefit sharing. When the Kanis revealed their knowledge of Arogyapacha, the TBGRI formulated an ambitious plan to develop, license, patent and market a herbal formulation. The project also required the Kanis' help and involvement in collection and cultivation, in exchange for a 50% share of the benefits. One of the most significant justifications for the requirement of mutually agreed terms and equal participation in the formulation of benefit sharing models, is the need to incorporate the cultural considerations and concerns of tribal communities. While the terms of the project were formulated by the TBGRI with the intent to "demonstrate to the world that [an] indigenous knowledge system is a valuable source and the owners of indigenous knowledge should be rewarded wherever it is utilized for a commercial[ly] viable product or process,"¹³⁷ the good intentions of the TBGRI were insufficient to transform the Institute's pre-conceived terms into a "mutual agreement."

i. Monetary Compensation

The TBGRI and the AVP negotiated the licensing fees and distribution of royalties independently of the Kani tribals.¹³⁸ The TBGRI then promised to share 50% of the benefits accruing from the sale of a seven-year license and 50% of future royalties with the Kanis.¹³⁹ Scathing criticism from political and tribal welfare groups point to the apportionment of money promised to the Kanis and call it minuscule compared to the potential profits from the sale of Jeevani.¹⁴⁰ Although a

136. Pushpangadan, *supra* note 1, at 12.

137. Pushpangadan, *supra* note 1, at 11.

138. *Government of India*, *supra* note 20.

139. *Id.*

140. According to one source,

spokesperson for the TBGRI indeed boasted that the medicinal derivative of the indigenous plant is sure to be a "money-spinner,"¹⁴¹ the Institute insists that 50% of the two percent royalty is a fair allocation of profits because Jeevani is an experimental drug and a "one to four percent royalty is accepted worldwide."¹⁴² The drug has, in fact, proven to be an instant success, selling quickly within India and to Southeast Asian countries for Rs.160 per 75 grams.¹⁴³

Regardless of whether the TBGRI's allocation of royalties was deemed fair or unfair by critics, the true indication of

[T]he benefit sharing scheme for *Arogyapacha* saw hurdles right from the start. On July 22, 1995, the then chief minister of Kerala, A.K. Antony, was to sign a memorandum of understanding with Arya Vaidya Pharmacy (AVP), marking the technology transfer from the Tropical Botanical Garden and Research Institute (TBGRI). It was deferred at the last minute following intervention from the opposition led by the Communist Party of India-Marxist (CPI-M). The then leader of the opposition, V.S. Achuthanandan, argued that the license fee was too little considering the huge international market potential of the formulation. Calling the agreement a 'sell-out,' he suggested that the license fee could have run into crores [denomination for 1 million rupees] of rupees. The Marxist leader made a case for state government-run pharmaceutical companies, such as the Kerala State Drugs and Pharmaceuticals. He contended that the government could have considered transferring the technology to a public sector undertaking outside the state. If none of these was feasible, he recommended the government negotiate with other private drug companies for a bigger share as royalty. P. Pushpangadan, director, TBGRI, points out that the license fee of Rs 10 lakh [denomination one thousand rupees] was adequate as AVP was taking a risk of buying a product untested in the market. It is a promotional drug, he points out, adding that a 2 percent royalty is an internationally acceptable norm.

Wonder Herb, *supra* note 21. Dr. P. Pushpangadan, however, asserted that "[i]t is the highest license fee [paid for a drug based on traditional know-how] in India." *Id.*

141. The Director and Chief Coordinator of the Kani project acknowledges the sales potential and hailed the new drug as a rival to ginseng, claiming "[o]ur Jeevani acts like Chinese ginseng . . . [b]ut it is superior, because it does not contain any steroid." In fact, the TBGRI calculated that each acre of plant matter would yield Rs. 100,000 (\$2,500) at a quantity of 2,000 acres per collection, conducted three times a year. This would yield 15 million dollars U.S. each year, two percent of those royalties equals \$100,000. Kerala's forest minister, P.K. Kurup, reported that the project provided no benefit from the sale of *Arogyapacha* because "[i]t is a way of exploiting the tribals by certain lobbies. They [nursery owners] would ask the Kanis to collect the plant and give them little money or alcohol in return." *NATURE*, *supra* note 18, at 182; *Wonder Herb*, *supra* note 21.

142. *Wonder Herb*, *supra* note 21.

143. The demand for Jeevani was so high that all supplies sold out and could not be replenished to meet the demand because the raw plant resources depleted. *Id.*

equitable benefit sharing should be judged by well informed parties on both sides of the transaction. In the case of the Kanis, and other indigenous communities, any inflow of funds is welcomed by the community.¹⁴⁴ Equitable compensation in the form of monetary compensation is extraordinarily effective so long as the needs and considerations of the community are earnestly considered. Fundamentally, this requires the participation of indigenous communities in the benefit sharing negotiations from which the Kanis were excluded.

ii. The Social Effect of Bio-prospecting Activities on the Kani Tribe

Though the TBGRI's cultivation of Arogyapacha and development of Jeevani invited the influx of capital into the Kani community, it also ushered in issues ranging from intra-tribal tensions, and additional burdens on natural resources, to a brand new incentive for the locals to illegally collect plants from a government restricted site.¹⁴⁵ Pursuant to the CBD, the focus of negotiations over mutually agreed terms requires careful consideration of the short and long-term effects of bio-prospecting contracts on indigenous communities.¹⁴⁶ Although the TBGRI is a local government research institute, knowledgeable about the traditional lifestyle and concerns of the Kanis, the Institute's consideration alone was clearly insufficient to protect the Kanis from negative social repercussions.¹⁴⁷ A certain degree of change and social impact is inevitable for a pristine indigenous community, touched for the first time by business propositions and resource development. Nevertheless, corporations and indigenous communities need to channel negotiations over contract terms to encourage beneficial change, limit negative effects, drastic changes in local culture, and customs, and burdens on the surrounding biological diversity.

Far before the details of the Trust had been finalized by the TBGRI and the tribe members, tension and rivalry grew

144. See Pushpangadan, *supra* note 1, at 8.

145. See *id.*

146. See CBD, *supra* note 6.

147. Apparently, the two original Kani guides worked for the TBGRI as consultants. The Institute interacts with the tribe through these two liaisons. See Anuradha, *supra* note 24, at 7.

among the Kani families residing in different parts of the region, as well as between the older and younger generations of Kani tribe members, due to the introduction of the TBGRI's project.¹⁴⁸ Although the Kanis are still a small community, whose members share fundamental cultural commonalities, the Kanis "are no longer one cohesive unit" and "[t]here is no uniformity in the Kanis perception of the benefit sharing proposed by the TBGRI."¹⁴⁹ The Kanis are disbursed among several tribal hamlets, each composed of 10-20 families.¹⁵⁰ Although the families of the subdivided units reside not more than 10-20 kilometers¹⁵¹ from each other, each segment of the community has been affected by the TBGRI's work in distinctive ways. The TBGRI has concentrated its work on the Jeevani production with the Kanis of the Gram Panchayat area.¹⁵² It is reported that the relationship and the reaction to the TBGRI is positive in this particular area.¹⁵³ However, a short distance away reside the Kanis of Vithura and Peringamala, who have a very negative opinion of the TBGRI and the disclosure of their indigenous knowledge to the Institute.¹⁵⁴ The President of the Vithura Panchayat has "expressed offense at the fact that TBGRI has not made the effort to reach out to the Kanis in his Panchayat area,"¹⁵⁵ as well as anger over the fact that his hamlet heard about the benefit sharing project through the newspaper, rather than through the TBGRI or fellow Kani members themselves.¹⁵⁶ The President added that "this is an instance when a scientific institution has pirated tribal knowledge for its own benefit, and that the benefit sharing proposal is a superficial exercise since the Kanis have neither been consulted nor involved in the exercise."¹⁵⁷ An additional problem arose from the TBGRI project's inception; the younger generation of Kanis eagerly took part in plant collection, even when the only means of access were smuggled plants from the

148. *See Wonder Herb*, *supra* note 21.

149. *See Anuradha*, *supra* note 24, at 7.

150. *See id.* at 3.

151. *See id.* at 7.

152. *See id.*

153. *See id.*

154. *See id.*

155. *Id.*

156. *See id.*

157. *See id.*

restricted forest reserves.¹⁵⁸ For the poor, indigenous Kani community, the tribe's relationship with the TBGRI serves as a unique opportunity to earn money. The older generation, however, supported by organizations such as the Kerala Institute for Research, Training and Development of Scheduled Castes and Scheduled Tribes (KIRTADS),¹⁵⁹ regard their tribal knowledge as sacred and have appealed to the younger generation to protect the tribe from exploitation of its knowledge and resources.¹⁶⁰

One of the shortcomings of the TBGRI's benefit sharing model is that segments of the Kani community do not feel sufficiently involved, leaving no incentive for this isolated membership of the tribe to contribute and benefit from the project.¹⁶¹ This is illustrative of the need to take an entire community's interest into consideration when formulating benefit sharing agreements. Without cognizance of social and cultural considerations, future generations will lack the necessary incentives and motivation to continue initiated projects jeopardizing the bedrock of indigenous communities—the environment.

3. Mandatory Legal Representation

A third element of the proposed biodiversity legislation, which is not required by CBD's Article 8(j), but essential to the effective implementation of the two required CBD terms, is government sponsored legal counsel to act on behalf of the local communities. A mandate for PIC and benefit sharing necessarily requires proper legal representation to facilitate the direct negotiations between indigenous communities and

158. *See id.*

159. The Kerala Institute for Research, Training and Development of Scheduled Castes and Scheduled Tribes, (KIRTADS) and the TBGRI have a history of conflict and tension regarding indigenous communities. KIRTADS "is a research institute under the Government of Kerala which was set up under directions of the Central Government [federal government]." *Government of India*, *supra* note 20; Anuradha, *supra* note 24, at 6. KIRTADS has traditionally promoted the protection of tribal medicinal knowledge. TBGRI accused KIRTADS of trying to undermine the Kani project. In 1995, KIRTADS pushed proposals for state legislation that would mandate government monitoring and approval of any agreements made with Kerala's indigenous communities. *See Wonder Herb*, *supra* note 21.

160. *See Wonder Herb*, *supra* note 21.

161. *See Anuradha*, *supra* note 24, at 7.

business entities. Legal expertise pertaining to local resource ownership rights, obtaining locals as contractual partners under employment contracts, and familiarity with state and local ordinances, are indispensable where both parties are likely to be unfamiliar with legal issues which could potentially entangle contractual terms. Parties negotiating without legal counsel will encounter complications regardless of whether the interested corporation is of Indian or foreign origin.

Timely, adequate, and impartial legal representation is critical in providing tribal communities with the necessary leverage to negotiate and implement benefit sharing agreements.¹⁶² Indigenous communities need legal expertise to zealously represent and explain their legal rights, options, and obligations in all contractual negotiations over technology transfers, access to biodiversity, and compensation for indigenous intellectual property.¹⁶³ This facilitates the process of full disclosure and allows tribe members to grant a truly informed consent. Additionally, the assistance of legal counsel provides a realistic opportunity for indigenous communities to bargain for more favorable terms. Finally, legal representation allows indigenous communities to feel secure in contracting with transnational corporations because of the assured equality in bargaining power.

With regard to the actual implementation of the Arogyapacha project, the TBGRI stated that it had provided "assistance in the form of access to legal advice to the Kanis in this [Agasthiya Hills] area."¹⁶⁴ The TBGRI, however, in recognizing and acknowledging the importance of legal representation, nevertheless failed to provide adequate and impartial counsel capable of vigorously representing the tribals' interests. There is no indication that the Kanis received counsel to negotiate fundamental terms, explain the legalities of the Trust, or explore the possibility of conflicting legal issues such

162. See generally Anuradha, *supra* note 24, at 11-14.

163. *Id.*

164. *Government of India*, *supra* note 20. As Anuradha describes, the scientists and researchers at the TBGRI were very protective of the Kanis and the tribe's general welfare. Poverty, lack of formal education, and the unfamiliar notion of attaching property rights to natural resources and indigenous knowledge, places the tribals at disadvantage in negotiating formal bio-prospecting contracts. The TBGRI-Kani relationship has consistently been described as one of "trust and faith." Anuradha, *supra* note 24, at 7.

as the Forest Department's initial ban on Arogyapacha. KIRTADS called the deal "unfair"¹⁶⁵ because the "TBGRI has not involved the Kanis in the negotiating process."¹⁶⁶ KIRTADS argued further that "the Kanis should be encouraged to directly interact with wider society, and administer their medicinal knowledge according to the terms set forth by them."¹⁶⁷

IV. CONCLUSION

Biodiversity legislation incorporating decentralized monitoring of contractual negotiations by the government will safeguard the procedural requirements implied within any contract between bio-prospectors and local communities possessing intellectual property. Secondary issues such as the replication of benefit sharing models, establishment of electronic databases, allocation of benefits, and distribution of authority within indigenous communities, will be additional concerns of bio-prospecting contracts, but those issues only can be resolved once the larger structural issues are solidified by the legislature.

India best may fulfill its obligation under the CBD by incorporating (1) prior informed consent, (2) mandatory benefit sharing, and (3) appointed legal representation in the spirit of Article 8(j), in order to pave legally enforceable channels which are favorable to local communities and industries. The fulfillment of CBD Article 8(j)'s goals by member states is invaluable to indigenous populations because the recognition of indigenous intellectual property and the sustainable use of natural resources is essential to each local community's survival. By re-affirming the sovereignty of the signatories over their own

165. *Government of India*, *supra* note 20.

166. *Id.*

167. KIRTADS suggested that a more equitable partnership would be for the TBGRI to "consider ways and means to impart technical know-how to the Kanis to manufacture the drug, and thereby involve them further in the process." *Id.*

biological diversity, the CBD encourages members to develop a workable legislative framework that is appropriate for the needs and circumstances of their indigenous communities.¹⁶⁸

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168. See Carmen, Andrea and Alberto Saldamando, Antonio Gonzales and Carol Kalafatic, *Plant Plunder, Genes and Sneakers*, in UNITED NATIONS CHRONICLE 28, Vol. XXXVI No. 1 (1999).